

STYLE OF METEOROLOGICAL PUBLICATIONS.

It would be well if certain meteorological institutions, in publishing the results of observations, would keep in view the requirements of the libraries in which their publications are to be bound and preserved. The Weather Bureau Library is embarrassed by the receipt of many periodical printed reports of unwieldy size. In other cases the size of page varies from year to year, or is even altered in the middle of a year; and again the publications of a single institution exhibit a variety of sizes in reports which, but for this fact, it would be desirable to bind in one volume.

The latter case is illustrated by the publications of the Meteorological Service of the Azores. These consist of single sheets of three different sizes. The type is unnecessarily large and two of the three forms of page used are of awkward dimensions. A uniform quarto page might be substituted in these cases by the use of smaller type.

The *Anales del Instituto Físico-geográfico Nacional de Costa Rica*, in which are published the very complete meteorological observations made by the Institute at San José, were formerly issued in a size not much exceeding the quarto, and small enough to be accommodated on the quarto shelves of libraries. Volume IX, however, which has recently been received by the Weather Bureau, is an unwieldy folio, having a page 16 by 12 inches, about one third of which (on most of the pages) is waste margin. Though the binder will reduce these dimensions somewhat, the volume will still be too large to be placed with the earlier numbers, an obvious disadvantage to any one consulting the file.

Capricious changes in the titles of serials, eccentricities in pagination, and many other vagaries on the part of authors and editors might be mentioned in this connection, but would take us too far afield.—*C. F. T.*

COSMIC RELATIONS OF THE ATMOSPHERE.

In reviewing a recent work by J. M. Schaeberle, of Ann Arbor, Mich., as published in the *Astronomische Nachrichten*, Dr. Johann Riem, of Berlin, has the following paragraph in the *Beiblätter* for 1906, page 57:

The assumption that certain terrestrial phenomena, like auroras and magnetic disturbances, occur when the earth passes through streams of matter emanating from the sun, is generally opposed by the fact that there is no common periodicity in these phenomena. On the other hand Schaeberle shows that such a periodicity is not to be expected, unless one assumes that the initial velocity with which the matter proceeds from the sun is the same in all these streams. He computes a table giving the following quantities for the respective initial velocities, V_0 , in English miles per second; namely, T_1 , the time, expressed in days, elapsing until the stream starting from the sun reaches the orbit of the earth; r , the distance (in radii of the earth's orbit as unit) to which the particles can attain; V_1 , the velocity in miles per second with which they pass the earth's orbit; and T_2 , the interval in days within which the current passing out of the earth's orbit returns to it again, as shown in the following table:

| V_0 | T_1 | r | V_1 | T_2 |
|--------|-------|----------|-------|----------|
| 376.76 | 64.6 | 1.0 | 0.0 | |
| 381.56 | 33.2 | 2.0 | 18.3 | 332 |
| 381.78 | 26.7 | 4.0 | 22.4 | 1003 |
| 381.93 | 28.8 | 6.0 | 23.6 | 1869 |
| 382.00 | 27.4 | ∞ | 25.9 | ∞ |

From this it appears that while the velocity, V_1 , with which the particles cut across the earth's orbit may increase from 0 to 26 miles, the initial velocity increases by only one-tenth of 1 per cent.¹ With an initial velocity of 382 miles per second, or above it, the material is scattered through space to infinity; for less velocities, after an interval of from 27 to 65 days, we get traces of an influence on the earth. If the current has considerable inclination to the vertical at the sun's surface, then the phenomena are considerably more complex.

¹Thus in the text; but 1.4 per cent would seem to be correct.—*C. A.*

Applying this argument to a comet, of which V is the radial component of the stream, and v the velocity of the comet in its orbit, then the relative velocities before and after the perihelion passage will be as $V + v$ to $V - v$. This explains the variation in the comet's brightness and the departures from the law that would make the diminution of brightness a simple function of the distances from the sun and the earth to the comet.

THE PROVINCE OF THE MONTHLY WEATHER REVIEW.

Several scientific periodicals are published in the United States in which attention is given to meteorology. The oldest of these is the *American Journal of Science* in which Redfield, Mitchell, Olmstead, Hare, Loomis, Tracy, Ferrel, DeForrest, and others published important papers. The well-known journal "Science," beginning about 1875, has continued to offer a field for the interchange of views on every branch of meteorology and has been distinguished by the number of short articles as compared with the longer elaborate investigations. The only periodical specially devoted to meteorology was the *American Meteorological Journal* founded by Harrington in 1884, and maintained at his own private expense until 1892, when it was adopted by the New England Meteorological Society and Ginn and Co., publishers.

With the advent of Professor Harrington as Chief of the Weather Bureau, July 1, 1891, the *MONTHLY WEATHER REVIEW*, which had been restricted to the publication of data and notes by the officials of the Weather Bureau, was authorized to enlarge its scope, so that when the *American Meteorological Journal* ceased, at the close of its 12th volume, the *MONTHLY WEATHER REVIEW* became the natural and most convenient medium for the publication of meteorological communications of all kinds. On the other hand there has been a danger lest its official character should give undue weight to its editorial notes and to the special articles contributed by both official and nonofficial meteorologists.

As the Chief of Bureau has made the Editor largely responsible for the character of the material published in the *Review* he has endeavored, by allowing the greatest freedom of publication, to encourage everyone interested in meteorology to publish his best ideas and to philosophically accept honest and kind criticism when the latter is animated solely by a desire to advance our knowledge of the subject. Of course criticism has always something of a personal aspect; it is liable to arouse opposition, replies, and counter replies, and to wound one's personal pride, but by many years of experience we have learned that there are many who hold the progress of science as something far more important than their own personal triumphs. There are those who can calmly weigh the arguments pro and con, and decide with fairness whether a certain view or theory is in accordance with the facts and in accord with the present state of our knowledge; whether it is an error long since overthrown or whether it is an hypothesis too far in advance of our present knowledge to be demonstrable now and one which must therefore be left to future generations to settle.

The sciences can advance only step by step. No one can tell where or when the next important step will originate. Many humble beginners may suggest good ideas that will be confirmed by more eminent investigators after years of work. We must be careful not to ridicule a new hypothesis, but equally careful not to adopt it as a well established principle for fear lest thereby we may be led astray. There has always been a contest between the dullards and conservatives on one side and the bright theorists on the other. The legitimate use of the imagination is the most important consideration to a man engaged in research, but the illegitimate use of the imagination is very dangerous.

If the Editor of the *MONTHLY WEATHER REVIEW* occasionally allows the publication of a memoir in which the imagination is more prominent than the facts, it is not that he wishes to assist in the propaganda of some new idea, but because he is